Chagrin Falls
North Street Sidewalk Extension
March 2012

This analysis covers the northern section of North Street from Falls Road to the municipal line, approximately ~~1,200~~ 2,400 feet. Residents of the area have expressed an interest in having access to pedestrian and/or bicycle facilities that would provide a measure of safety not currently available to pedestrians/bicyclist using the roadway. This section of North Street was identified in the final report of the *Chagrin Falls Region Alternative Transportation Study* as a proposed signed/shared roadway. Connection to this section of roadway as proposed in the *Transportation Study* was by means of a proposed signed/shared section of Cleveland Avenue or a proposed sidewalk on North Street south of the Falls Road intersection. Most of the public generally considers pedestrian facilities to be limited to sidewalks; however, they encompass a much broader scope of services and facilities. Pedestrian facilities include, but are not limited to, traffic control devices, curb ramps, grade separations (overpasses and underpasses), crosswalks, and design features intended to encourage pedestrian travel (such as traffic calming devices including speed bumps or center refuge islands). In general, these facilities parallel the roadway system and are provided as part of the public right-of-way.

Pedestrian facilities or "pedestrian lanes" provide people with space to travel within the public right-of-way that is separated from roadway vehicles. They improve mobility for pedestrians and provide access and an alternative means of travel to and from home, work, parks, schools, shopping areas, and transit stops. They also provide places for children to walk, run, skate, bike, and play. In this situation because the space available to incorporate a pedestrian facility is limited by topography, utilities, mature vegetation and other physical obstacles, several walkway types will be considered.

Walkway Types

It is much safer for pedestrians to have a walkway separated from automobile or other types of motorized vehicle traffic. However, in many instances, this is not reflective of existing conditions. Hence, there are several different recognized types of walkways.

Sidewalks In urban and suburban environments, the preferred facility for pedestrians is a sidewalk. Sidewalks are typically constructed of concrete and located adjacent to curbs and separated from the roadway by a buffer zone. They provide positive separation from motor vehicle traffic, a hard smooth surface on which to walk, and the opportunity to clearly indicate crossing points and movements at intersections. Sidewalks are the most recognized, most widely constructed, and most visible form of walkway. The recommended standard minimum sidewalk width is 5 feet.

Multi-Use Paths In fringe areas outside or near the limits of an urban boundary, a path may be appropriate along rural roads connecting to just one or two specific destinations. A common example is a path leading to a school in a rural setting, where sidewalks, curbs and drainage are not warranted. A high level of attention must be paid to safety at their intersections with roadways. Paths may attract multiple user types, including bicyclists and skaters as well as pedestrians. Paths are usually separated from the traveled portion of the roadway and the highway right-of-way. Paths may be paved or unpaved; however, when unpaved, they should be smooth and firm enough to meet ADA requirements. The recommended width for multi-use paths is 8 - 10 feet, depending on its location and user volume.

Shoulders Shoulders on roadways, when designed according to AASHTO recommendations, are usually wide and smooth enough to accommodate pedestrians in rural areas where the provision of sidewalks or paths may not be practicable or feasible. In rural areas that are more residential in

character but do not have high enough densities to warrant sidewalks, there should be at least 4-foot wide shoulders to accommodate pedestrian and bicycle traffic. Shared use of such shoulders by other users, including motor vehicles, should be expected. However, using shoulders as the primary type of pedestrian facility is problematic. It opens up points of conflict between pedestrians and motorists. Paved shoulders should only be a last-resort, low-cost pedestrian facility.

Sidewalks vs. Bikeways Sidewalks are not to be used as bicycle facilities unless no other option is available. Sidewalks should not be identified as part of a bikeway network. Conflicts arise when pedestrians share sidewalks with bicyclists. Due to the horizontal operation space of both parties, a standard sidewalk does not allow for adequate passing space. The better option if both pedestrian and bicycle users are identified is to install a Multi-Use Path.

Existing Conditions

This north section of the right-of-way for North Street has a very distinct profile. The west side is relatively flat while the east side has a drop-off just outside the right-of-way that slopes at about 28%. Most of the homes are located on the west side and therefore there are multiple driveways, mature planting, mailboxes, utility poles and some structure encroachments in the form of fences. The west side has guardrails along 600 feet, along with the mature planting, mailboxes, and utility poles. There appears to be no storm sewer connections along this portion of North Street though there are some shallow swales. From the intersection with Falls Road, North Street rises as an average slope of 3.75% for 480'. It then flattens out with no obvious direction of stormwater flow in the roadside swales. Through this flatter section the profile along each side of the road also flattens out and the number of drive cuts increases on the east side.

Complicated intersection requires multiple crosswalks to connect the proposed sidewalk south of Falls Road with the proposed sidewalk to the north.

A sidewalk located on the west side will require removal of vegetation and regrading of the landscape berm along the undeveloped areas of the roadway.

Slopes of 28% on the east side of North Street create limited opportunity for sidewalks. Also, guardrail and mailbox locations contribute to difficulty in sidewalk placement.

Utility poles, guardrail and slope on the east side and mature vegetation on the west side.

Mature landscaping in front of houses on the west side.

Structures such as fencing and mailboxes restrict the available space on the west side of the street.

Ditch profile must be included in the right-of-way with the proposed walk and the existing mailboxes.

Landscaping, mailboxes, drainage swales and utility poles are accommodated in the current right-of-way.

North Woods Subdivision has sidewalks on both sides of Longwood Drive where it intersects with North Street. Connection to these sidewalks would require a midblock crossing. Traffic calming measures at this crossing would both create greater safety here, but could also be use to encourage slower speeds along the length of this northern section of North Street.

Chagrin Falls should consider the following approaches for development of future pedestrian links. For this project, it is possible that approaches 2 and 3 can be applied.

1. Regulate new development and re -development Official policies and related ordinances promote making walkway installation "automatic." When policies and ordinances are changed, include this type of provision.
2. Capital projects Look for opportunities to install sidewalks as part of capital projects. In urban and/or suburban situations, add sidewalks when widening a road or installing a sewer line in the right-of-way. Typically, sidewalks will add only a small amount to the overall project budget and extra savings can result when expenses, such as excavation, can be lumped together.
3. Adjacent property owners Many communities give property owners the option of installing curbs, gutters, and sidewalks through a Limited Improvement District (LID). With a LID, property owners pay the cost (or a percentage) over time. This can be expensive and may generate opposition to sidewalks in general. However, if they are locally acceptable, LIDs can be an important part of establishing pedestrian facilities.

Recommendations

A review was made of site conditions and comments made by the local residents. The most obvious concern for pedestrians along this particular stretch of roadway is safety. Users are looking for a connection to the downtown Chagrin Falls area along with connection to institutional uses such as the schools, library and recreational activities. Because the users include children, there is a desire to separate the pedestrian facility from the automobile traffic. In the second two proposed solutions outlined, the pedestrian facility is located only on the west side of North Street. This is a result of the site conditions and consideration for the relatively low volume of users. In all of the options, it is assumed that extension of the pedestrian facility would extend only to Longwood thereby serving the greatest number of users. Extension to the municipal line would be desirable only if the adjacent political subdivision has plans to make a connection to the proposed facility. This should be discussed with Russell Township.

The simplest option is the addition of a minimum of 4' of pavement to each side of the roadway. This solution is depicted in Figure 1. This solution would include signage to designate it as a signed shared roadway (SSR). Because of the obstructions such as guardrail and the steep drop off on the east side, the addition of the 8' of pavement may have to be added disproportionally to the west side of the roadway. The *Chagrin Falls Region Alternative Transportation Study* designated this section of North Street as a proposed signed shared roadway as extended from Falls Road to the south.

Wider shoulders accommodate pedestrian and bicyclists, but the wider pavement often has the undesirable effect of encouraging increased speed.

Though a widened shoulder is probably the most space and cost efficient option, it does not provide the pedestrian/auto separation. Instead, a safer solution would be a modified roadway width with a swale to address drainage and a standard 5' sidewalk directly beyond this modified roadway. In the attached Figure 2, this solution is shown in section. The location of mailboxes, the drainage concerns, snow plowing concerns, width of the sidewalk and accommodation of bicyclists all can be addressed in this layout.

The shortcoming of this space saving approach is that even though there is separation, there is close proximity of pedestrians to automobile traffic. Also, because the walk is directly adjacent to the road, its elevation must be adjusted at drive aprons. The walks must also be widened by two feet at each mailbox location. This option may potentially be widened to allow for a 10' wide all-purpose trail (APT) but with much greater impacts to structures in the right-of-way. All projects built with involvement of federal dollars are required to adhere to the minimum standards set by The Ohio Department of Transportation (ODOT) and the American Association of State Highway and Transportation Officials (AASHTO). The source of funding must be considered in this non-traditional approach.

This shows a sidewalk abutting the roadway pavement. The addition of a widened shoulder provides some buffer, but does not provide the same degree of separation found in the traditional sidewalk section outlined in option 3.

The third option is a traditional sidewalk alignment with separation from the road. As shown in Figure 3, this alignment has the greatest impact on structures within the right-of-way. Because of the grading issues that have already been identified, the sidewalk is proposed for only the west side of the road. This will necessitate that residents from the east side of the roadway must cross the street to reach the sidewalk. This may become a greater issue at the intersection of North Avenue with Longwood because of the potential for a high volume of users cross the street from the sidewalk system that exists in the North Woods Subdivision. A signed midblock crossing with a striped crosswalk would be appropriate at this location.

The sidewalk option also requires some adjustment to the drainage system, some grading, along with relocation of some fencing and landscape material. It is assumed that the sidewalk can be aligned to avoid above ground utility structures. The walk is shown as the standard 5' width, but if location of a standard sidewalk is already incurring costs for moving structures or the need for temporary or permanent easements, a wider all-purpose trail should be considered. This APT would typically be 10' wide.

The traditional 5' wide sidewalk allows for pedestrians to walk side by side. A grass strip of a minimum 5' is provided as buffer.